

L2 ANSWER 17 OF 26 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 4

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TITLE: Transdermal ion migration.

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SUMMARY LANGUAGE: English

ABSTRACT:

This chapter will focus on the influence of ion composition on the transdermal delivery of drug species through mammalian skin, due to an applied electric field. The pH of the drug-containing medium is shown to affect drug transport by altering the fraction of charged drug and the permselectivity of skin. The competitive transport of ions having the same charge as the drug ion (co-ions) and those having a charge opposite that of the drug ion (counter-ions), is discussed in detail. A model is derived to predict drug ion flux through a homogeneous non-ionic membrane at constant current, in the presence of one type

of co-ion and counter-ion. Model values are compared to experimental data for ion migration through a synthetic aqueous membrane and through excised porcine skin. This comparison suggests that ion transport through pig skin occurs primarily along an aqueous pathway. In addition, a comparison of in vitro and in vivo data for several drug ions as well as comparison of in vivo results for

transdermal sodium influx and efflux, suggests that the apparent

sodium **chloride** concentration of the viable epidermis is hypotonic, having a value of about 0.09 M.

CONTROLLED TERM: Medical Descriptors:

*drug transport

*ion transport

*iontophoresis

*skin penetration

human

ph

priority journal

review

transdermal drug administration

Drug Descriptors:

*hydromorphone: PK, pharmacokinetics

*hydromorphone: AD, drug administration

*lidocaine: PK, pharmacokinetics

*lidocaine: AD, drug administration

*metoclopramide: PK, pharmacokinetics

*metoclopramide: AD, drug administration

*noradrenalin: PK, pharmacokinetics

*noradrenalin: AD, drug administration
*tolazoline: PK, pharmacokinetics
*tolazoline: AD, drug administration
CAS REGISTRY NO.: (hydromorphone) 466-99-9, 71-68-1; (lidocaine) 137-58-6,
24847-67-4, 56934-02-2, 73-78-9; (metoclopramide)
12707-59-4, 2576-84-3, 364-62-5, 7232-21-5; (noradrenalin)
1407-84-7, 51-41-2; (tolazoline) 59-97-2, 59-98-3

ACCESSION NUMBER: 93:31656 NLDB
TITLE: France TOPICAL AIDS PREVENTION A POSSIBILITY
SOURCE: AIDS Weekly, (1 Feb 1993) .
ISSN: 0884-903X.
PUBLISHER: CW Henderson, Publisher
DOCUMENT TYPE: Newsletter
LANGUAGE: English
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TEXT:

A natural human enzyme found in certain types of white blood cells when combined with hydrogen peroxide and sodium iodide or **sodium** ***chloride*** can inactivate **HIV- 1**.

Together, these substances could be incorporated into topical preparations, such as spermicides, to prevent HIV transmission, a group of investigators from France report.

"For example, this system may have a protective effect when incorporated into spermicides placed in the vagina, since it has been reported that semen from HIV-1- infected individuals also contains infectious virus," said senior investigator Dr. Marc Stanislawski, of the Centre Nationale de la Recherche Scientifique at Villejuif, near Paris. The group reported their results in the January 1993 issue of Antimicrobial Agents and Chemotherapy, published by the American Society for Microbiology.

"Free virus present in secretions might be considered a potential target for this virucidal system. We have shown that it can also kill the virus in virus-infected cells, but we don't know yet whether it can prevent infection in healthy cells. We presume that it would, based on our results to date," he said.

The enzyme is myeloperoxidase, an antimicrobial agent found in large amounts in neutrophils, white blood cells that are one of the first lines of defense against invading microorganisms. However, the cells that are attacked by HIV, macrophages and T-lymphocytes, do not contain myeloperoxidase, which is one of the reasons the virus may persist, he explained.

In laboratory experiments, Stanislawski and his colleagues found that the virucidal system prevented HIV from harming cultured cells and prevented HIV replication in cultured cells infected with the virus. The cells were used from standard cell lines frequently used in laboratory experiments.

"Our next step will be to test the system in white blood cells from patients infected with (HIV) to see if it can stop the virus from replicating and to see if the system can prevent infection in normal white blood cells," Stanislawski said.

Replaces CDC AIDS Weekly. Subscription: \$995 per year as of 1/92. Published weekly with mid-week supplement. Contact Rosie London, P.O. Box 830409, Birmingham, AL 35283-0409. Phone (800) 633-4931 or (205) 995-1567. FAX (205) 995-1588.

CONTROLLED TERM: MH Medical and Health

L2 ANSWER 14 OF 26 PROMT COPYRIGHT 2002 Gale Group

ACCESSION NUMBER: 96:637898 PROMT
TITLE: Salt water soaking possible alternative psoriasis
treatment
now available in Germany
SOURCE: Dermatology Times, (Nov 1996) pp. S20.
ISSN: 0196-6197.
LANGUAGE: English
WORD COUNT: 874
TEXT:

Karen Zabel

Contributing Editor

Dermatologists looking for an effective, safe method for psoriasis treatment need look no further than the bathroom, according to a nationwide study currently under way in Germany.

Based on the success rates of salt bathing treatments in the Dead Sea, where as many as 56% of patients have achieved clearing of their psoriasis, researchers in Germany decided to perform a large-scale study to determine if similar success rates could be achieved in specially equipped outpatient clinics, thus avoiding the high cost of travel and protracted absences from work associated with treatment at the Dead Sea or one of a handful of specialized spas in Europe, which offer similar treatments.

Launched in 1994, the nationwide study is being conducted by Volker Streit, MD, Oliver Wiedow, MD, and Enno Christophers, MD, all from the department of dermatology, University of Kiel, Kiel, Germany.

'Balneophototherapy (BPT) is an excellent, well-established therapy for psoriatic patients,' said Dr. Streit. 'It is a therapy with a very low profile of side effects, especially for patients with a body surface involvement of more than 10 to 15%, as those patients are otherwise in demand for systemic therapy, or hospital admission.'

'Unfortunately, patients have to leave family and work for up to 6 weeks,' he noted. 'Additionally, this is a heavy financial strain on social security systems.'

Establishing treatment centers at a local level avoids those complications.

Currently, the study involves 315 outpatient clinics in Germany, including 21 university dermatology clinics, 21 regional hospitals, and 273 outpatient clinics of local dermatologists.

'Up to now, we have data of more than 7,000 patients in our computers,' he said. 'Finally, we will probably hit a number around 10,000 or 15,000. This will be the largest study on balneophototherapy ever to be conducted.'

Dr. Streit's data is thus far based on 1,414 psoriatic patients.

'High molar salt bathing increases the elution of neutrophil-derived pro-teases such as elastase and cathepsin G from the psoriatic plaque,' he said. 'This only works with salt water, not tap water. The elution of these enzymes strictly depends on the ionic strength applied.'

PASI Reduction High

Salt bathings resulted in a Psoriasis Area and Severity Index (PASI) reduction of 85% (dropping from 20 to 3), and clearing was achieved in 42% of the patients. An average treatment cycle consists of 20 (+/-12) days.

Both polyethylene sheet and tub methods were used to treat patients. Tubs used for the study are specially designed to recycle, filtrate, and reuse the salt water up to 30 times, he said.

Salt concentrations ranged from 15 to 25%, and the duration of each bath was 15 minutes. Baths were followed by UVB radiation and a subsequent shower to rinse the salt from the body. Cumulative UVB dose was 3.6 J/cm(2).

Therapy was performed three to five times per week. Total time for each course of therapy was 45 minutes. Any commercially available UV light sources can be used for the therapy.

A mean of 20 (+/-10) treatments were required to achieve more than an 80% clinical improvement.

The therapy is contraindicated in patients with cardiac conditions, hypertension, and angina, as well as patients under age 10 years, because of the risks of long-term UV exposure.

Dr. Streit said no side effects of salt bathing have been noted thus far. There is no indication of **transdermal** uptake of magnesium chloride or *****sodium*** chloride**. In addition, salt bath therapy is less toxic than methotrexate, cyclosporine, and topical steroids.

Patient compliance was high, with a drop out rate of only 4.5%, primarily because of lack of time, business obligations, or lack of insurance coverage for the procedure, he said.

Great Patient Compliance

'Basically, psoriatic patients love salt bath therapy if they can manage the problem of the time the therapy involves,' he said.

Although relapse data has not yet been evaluated, Dr. Streit predicts relapse will occur about 3 to 4 months following cessation of the baths.

'Virtually no dermatologist had a balneo unit in his outpatient clinic before we started this study in 1994,' he said. 'Right now, about 10% (273 physicians)

have a balneo unit.'

Dr. Streit said that, although the traditional single-physician practices of Germany make it a little more impractical to purchase and install such units, the large group clinics, found throughout much of the United States, provide the perfect setting for these units.

'Large group clinics are ideal for establishing a balneo unit because they usually have space, financial resources, and high turnover of psoriatic patients,' he said.

'It is neither high-tech nor a miracle, but most patients having suffered from psoriasis for years are very pleased with BPT,' he said. 'If hospital admission or rehabilitation admission is avoided by this therapy, the total cost of saving for insurance companies can be substantial. Employers do benefit as well, because BPT can be performed at outpatient clinics after work. This cuts out the need for sick leave.

'Beside the fact that BPT works, it also makes an outpatient clinic more attractive to patients,' he noted. 'A nice, clean bathroom with two bathtubs, showers, and a palm tree will definitely appeal to your patients on a gray winter day in New York, for instance.' DT

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